

NORTHERN HARDWOODS

Cover Type Guidelines

ROTATION AGES

Suggested rotation age depends upon the silvicultural system used and the desired product. An all-aged system doesn't really have a rotation age but would require an 8 to 20 year cutting cycle between thinnings. Even-aged silviculture could require a rotation as short as 50 years for fiber products or wildlife habitat or as long as 120 years or more for aesthetics or large sawlogs. Quality hardwoods should be grown on fertile, well-drained soils with no heavy clay layer or bedrock within 2 feet of the surface.

HARVEST SYSTEMS

Clearcut even-aged systems for fiber production on poor sites or to encourage intolerant species in the stand. The use of shelterwoods will encourage intolerant species such as oak and will produce even-aged stands. All-aged systems require more intensive management with harvesting being done on a relatively short cycle. Tolerant species will dominate. In saw log stands, cut when basal area reaches 95 sq. ft. for all trees 10"+. Cut back to approximately 65 sq. ft. basal area.

REGENERATION CONSIDERATIONS

The harvest system determines the regeneration system. Clearcutting will probably be regenerated by stump and root sprouts and advanced seedling regeneration. A shelterwood cut would be regenerated by advanced regeneration, sprouts and/or planted seedlings. All-aged management would encourage seedling reproduction of tolerant species.

PEST CONSIDERATIONS

The greatest volume losses in northern hardwood species are the result of disease organisms which discolor, decay, or deform standing timber. The management recommendations for reducing decay losses are discussed in oak cover type guidelines.

Mortality in the northern hardwood type is not common. Growth losses and periodic declines can occur following insect defoliation or adverse climatic conditions.

Maple decline is identified by branch dieback, stunted foliage and epicormic branching. It can be reduced by maintaining a well-stocked stand with a diversity of species.

Early spring defoliation by Basswood thrips, *Seriocothrips tilae* (Hood) occur in occasional outbreaks lasting for several years causing growth loss and some mortality on stressed and

understory trees. The heaviest defoliation occurs at higher elevations and on north slopes with abundant basswood stocking.

Canker diseases caused by *Nectria galligena* and *Eutypella parasitica* can reduce yields, cause minor mortality in young trees, and serve as openings for decay organisms.

Late summer defoliators including the saddled prominent, orangehumped mapleworm, greenstriped mapleworm, and the maple trumpet skeletonizer can cause infrequent outbreaks that seldom last and cause only minor growth loss.

Occasional tree mortality can be caused by shoestring root rot, *Armillaria* spp., and sapstreak disease, caused by *Ceratocystis coerulescens*, in wounded or stressed trees.

Management recommendations:

Monitor defoliation levels annually for loss assessment and maintenance of historical records.

WILDLIFE CONSIDERATIONS

Heavily stocked northern hardwood stands make poor habitat for most game species because of lack of browse and mast. However, some non-game species will benefit from northern hardwoods, especially old stands. Extensive northern hardwood acreage can be enhanced for wildlife through age class diversity and creation of openings.

PREFERRED SITE CONDITIONS

Northern hardwoods occur on a relatively narrow range of conditions. They generally have a high moisture and nutrient demand. Best growth will occur with the following site conditions:

- medium to fine soil textures
- moderately well to well drained soil
- constant moisture supply
- good soil aeration
- rooting zone greater than 2 feet

Northern hardwood is a very complex type. Refer to the bibliography references for more detailed information.